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ABSTRACT

The history of education for the professions is reviewed, along with the literature considering issues and controversies concerning professional education. The objective is to begin developing and issuing social indicator reports on the status of professional education that may be helpful to government agencies, accrediting bodies, and professional organizations. A conceptual framework identifies major components of professional education, issues for each component, and variables that should be included in a social indicator report. The conceptual framework covers: student characteristics, characteristics of professional curricula, factors influencing policies and practices of institutions offering professional education, availability of financial aid, and the role of continuing professional education. A social indicator report presenting time-series data on these topics would permit answers to the following research questions: (1) the status of various professions with respect to each issue; (2) whether the status of professions has changed in recent years; (3) possible future trends; (4) implications of these trends for educational policies; and (5) implications for educational policies of differences among the professions. An annotated bibliography of 20 publications is appended. (SW)

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THE STATUS OF EDUCATION FOR THE PROFESSIONS

Susan L. McCain

Prepared by

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STATISTICAL ANALYSIS GROUP IN EDUCATION

For the

National Center for Education Statistics

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TECHNICAL REPORT 6

THE STATUS OF EDUCATION FOR THE PROFESSIONS

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June 1979

TABLE OF CONTENTS

	Page
INTRODUCTION	1
Definitions of Professional Occupations	1
Growth in Numbers of Professionals	3
The Significance of Professional Education	4
Historical Trends in Professional Education	5
CONCEPTUAL FRAMEWORK	7
Characteristics of Students	8
Characteristics of Professional Curricula	12
Factors Influencing Policies and Practices of Professional Education Institutions	15
Availability of Financial Aid	20
The Role of Continuing Professional Education	20
SUMMARY	22
REFERENCES	25

LIST OF TABLES

Table 1.	Percentages of Professional Faculties Favoring Certain Policies toward Liberal Arts Subjects	13

LIST OF FIGURES

Figure 1.	Major influences on the characteristics of students in professional schools	11
Figure 2.	Major influences on curricular characteristics.	16
Figure 3.	Major influences on the characteristics of professional schools and departments	19
Figure 4.	Major influences on the amount and distribution of financial aid.	21
Figure 5.	Major influences on continuing professional education.	23

THE STATUS OF EDUCATION FOR THE PROFESSIONS

Introduction

This paper reviews the history of education for the professions and the literature that discusses issues and controversies within this topic area. The purpose of the paper is to serve as a first step toward developing and issuing one or more social indicator reports on the status of professional education. A conceptual framework is presented that identifies the major components of professional education, important issues concerning each of these components, and types of variables that should be included in the social indicator report. This information will be of interest to education professionals at the federal, state, and school levels, as well as to persons in professional organizations and accrediting bodies. Presentation of time-series data that describe the condition of professional education will aid in the identification of trends and of areas where corrective action is needed.

The feasibility of issuing one or more social indicator reports on the status of professional education is considered in the draft report entitled Feasibility of Social Indicator Reports in Three Content Areas (SAGE draft technical report, submitted in June 1979). That report reviews the availability of data sources for the classes of variables identified in the literature review and conceptual framework and recommends analyses for social indicator reports.

Definitions of Professional Occupations

Inquiry into the topic of professional education begins with the identification of that subset of occupations that are considered professional. Becker (1962), in Part II of the Sixty-First Yearbook of the National Society for the Study of Education entitled Education for the Professions, noted that this use of the term "professional" has long been the subject of debate.

> The question "What is a profession?" is an old one. Many definitions have been proposed by students of the professions. Many other definitions are implicit in everyday

> speech. Members of the accepted professions, interested laymen, and social scientists each use the word in their own way. Those interested in the question tend to disagree over fine points, and no agreement has been reached as to what the term specifies. [p. 27]

Millerson (1973) described the three approaches that are typically used to identify professional occupations. The first approach involves grouping the qualities that are common to widely recognized professions (e.g., medicine and law) and using these qualities as criteria for deciding the status of other candidate occupations. As an example of this approach, Millerson (1973) analyzed 21 expert opinions on the most significant aspects of the major professions. Six characteristics of these professions were agreed upon:

- The required skills have a strong theoretical basis.
- Mastery of these skills requires education and training, usually over a long period.
- Competence in various skills must be demonstrated and licensure or certification must be obtained.
- There is an established code of ethics for practitioners.
- Services are rendered by practitioners that are for the public good and are altruistically motivated.
- There is an organization of practitioners that is concerned about and strives for public recognition of the occupation.

The second approach to identifying professional occupations is based on the belief that professions evolve in stages; occupations can therefore be characterized according to their stage of development at a given point in time. The third approach relies on an ideal model of professional service that is compared to those occupations wishing professional status. Millerson points out that both the second and third approaches require some definition of what is a profession and therefore do not offer much advance over the first approach.

Certain occupations are generally agreed to be professions: medicine and several medical specialties, dentistry, law, engineering, pharmacy, architecture, and veterinary medicine. Less agreement exists that the fields of teaching, nursing, accounting, librarianship,

social work, religious vocations, and business management are legitimate professional fields. Together, these groups of occupations would provide a comprehensive basis for a social indicator report on professional education.

Growth in Numbers of Professionals

By any definition, the proportion of workers who are considered to be professionals has been increasing. In 1950, the number of professional workers constituted 6.4% of the work force. By 1960, this proportion had increased to 7.7% of the work force, and by 1970, to 9.5%. The proportions of both male and female professional workers increased during these two decades, with the ratio of female professional workers to the total female work force remaining higher than the corresponding ratio for males. This difference between the sizes of the male and female professional work force is due to the large numbers of female noncollege teachers and registered nurses; in 1970, these two categories accounted for 78% of all women professionals.

The rank order of the most populous professions according to total employment has remained stable since 1950: noncollege teachers, engineers, registered nurses, accountants, physicians and osteopaths, lawyers and judges, and clergy. For men, the largest professional groups in descending order were engineers, noncollege teachers, accountants, college teachers, lawyers and judges, physicians and osteopaths, and clergy. For women, the largest groups were noncollege teachers, registered nurses, accountants, social workers, college teachers, and librarians (Anderson, 1974).

The number of professions has itself increased, and this trend is likely to continue. Anderson (1974) noted that "the development of health service personnel who are not physicians has been spectacular in the last two decades" (p. 19). He observed that new professions will continue to emerge as (1) spinoffs of established professions, (2) transformations of professions moving toward obsolesence, and (3) responses to changing needs.

The Significance of Professional Education

Professionals in American society have an importance far exceeding their numbers. In the course of their work, professional workers exercise considerable influence over the way society solves its most important problems, whether they be medical, legal, moral, or environmental. While professional workers constitute only about 10% of the work force, they tend to be among the most active leaders in civic and political affairs. For example, of the 100 senators elected to the 95th Congress, 67 either had served as practicing attorneys or had obtained a law degree, and approximately the same proportion of members of the House of Representatives in that Congress had a similar background. Many of the remaining senators and representatives were trained in other professional areas.

As a consequence of the significant roles professionals play in our society, professional education has assumed a particular importance. Since the social turmoil of the 1960s, the roles that should be played by professionals and the education they need to help them fill those roles have been subject to much debate. Professional competence, their ethics, the accountability of professionals to the public, and the responsiveness of professionals to societal needs have headed the list of issues. Professional education, because it influences professional practice, has also come under scrutiny. Hellman (1978) stated that "those who voice...concerns conclude that, at best, the finished products of the law schools are no more socially aware or mindful than they were when they entered; at worst, the finished products are less concerned about the just resolution of social problems than they were when they began their legal studies" (p. 183).

In addition to issues concerning the quality of professionals, issues related to the availability and distribution of professional services have arisen in recent years. These issues most often concern physicians, but they apply to other professionals as well. Graham (1977) noted that the numbers of general practitioners declined during the late 1960s and the 1970s as the popularity of medical specialization increased. Long (1975) examined several factors that affect the geographic distribution of physicians.

The role of professional education in alleviating the maldistribution of professional services is usually viewed in terms of the types of students that are admitted to professional schools and the types of educational experiences with which they are provided. Smith (1974), in his study of recruitment and progress through school of minority medical students, observed that in 1970-71, black students constituted about 6% of the medical school entering classes, compared to 7% of full-time college students and 11% of all 20- to 24-year-olds. He suggested that "health care includes the ability to communicate, to relate, and to empathize with people of unsophisticated backgrounds, as well as to offer technical services" (p. 55). The issues of equity in admissions and subsequent equity of services to all target populations are significantly related. If particular segments of the population are systematically excluded from access to professional education, it is likely that those populations will also receive professional services that are less than adequate. Of the ten factors listed by Long (1975), three (community of origin, medical education experience, and medical education facilities) can be influenced by the professional educational institution. For example, medical schools can advise or require a preceptorship in a rural area as a condition for graduation. Such training increases the likelihood of eventual rural practice among graduates (Long, 1975).

Historical Trends in Professional Education

The history of professional education is a composite of the separate histories for the various professions. While the history of education for some occupations holding or approaching professional status (e.g., social work) did not begin until the twentieth century, for example, the fields of medicine, law, and theology have roots that extend far back to the thirteenth century.

Five general trends that have affected education in most professional areas can be observed within this century. These trends, which reflect the increase in concern for the quality of professional education and practice, are important for understanding the current status of professional education. For example, there is considerable pressure being applied

at the present time to reverse certain of these trends (longer training periods for professionals and increased emphasis on theory in their curricula). Particular examples of the five types of trends are presented below for medicine, because, in many respects, it is the most developed profession. However, the discussion of these trends applies to education in other professional areas as well.

The first trend has been toward university or other academic affiliation for professional education institutions. In medicine, this trend began with the publication in 1910 of the Flexner Report, which excoriated the shoddily operated, profit-oriented medical schools that operated in the late nineteenth and early twentieth centuries. Of the approximately 150 medical schools operating in 1900, most were operated by groups of doctors in their spare time as one- or two-year apprenticeship arrangements. After the Flexner Report appeared, the situation changed rapidly; half of the medical schools were closed by 1911, and virtually all the rest went "scurrying to find the protection of a university affiliation" (Miller, 1962, p. 104). While other professions have been slower to follow the rush to university affiliation, even totally independent professional schools must today show evidence that they maintain high academic standards, if only to compete with their well-known university counterparts.

The second trend has been toward increasing academic requirements for students in professional schools. In 1910, 23 medical schools required that applicants have two years or more of college work, 50 schools required a high school diploma or its equivalent, and the rest had virtually no entrance requirements at all (Schudson, 1974). Today, all professional schools require graduation from an accredited high school or college with participation in a rigorous and often lengthy academic course of study.

A third trend has been an increasing stringency in certification and licensing requirements. In the medical profession, a single level of certification has given way to certification in various specialty areas, and in some states periodic continuing education and reexamination are required.

A fourth trend has been away from reliance on practical training and toward a strongly academic and theoretical basis for professional education. This trend began with the increase in training requirements for physicians after the Flexner Report and has spread to all professions, though to varying degrees. Millerson (1973) states:

> At the beginning of the nineteenth century...education was mainly in the form of practical training through apprenticeship.... Today...there is an emphasis on a strong academic and theoretical base which is acquired only at university medical schools. [p. 37]

One result of these four trends has been an increase in the amount of formal education that aspiring professionals must obtain before entering their professions (the fifth trend). Almost all professions now require at least a bachelor's degree as prerequisite to licensing or certification, and many require some graduate training as well. Mayhew and Ford (1974) noted that professional education is moving away from undergraduate and into graduate education.

Each of these five trends has reflected concerns for the quality of professional practice and the education needed for practitioners. Controversy concerning these topics still exists. To inform this continuing debate the following discussion of current issues in professional education will identify the kinds of policy-relevant information that should be included in a social indicator report.

Conceptual Framework

Five issue areas concerned with professional education are particularly important today:

- The characteristics of student populations who apply to, enter, and graduate from professional training and enter professional practice;
- The characteristics of the professional curricula that influence the quality of professional practice;

- The factors influencing policies and practices of professional education institutions;
- The availability of financial aid for students needing assistance;
- The role of continuing education in the maintenance of professional knowledge and skills.

A social indicator report that addresses these areas should compare various professions on significant variables. In some cases, aggregate data on professional education will have implications for policy decisions (e.g., percentages of minorities and women enrolled in professional institutions). In other cases, however, policy decisions will concern individual professions (e.g., deciding among alternatives for fostering an optimum mix of medical specialties).

The following research questions are relevant to each of the five issue areas: (1) What is the status of the various professions on these types of variables? (2) How has the status of various professions changed over time? (3) What future trends are likely? (4) What are the implications of these trends? (5) What, if any, are the implications for educational policy of differences among professions on particular variables?

Characteristics of Students

Two major issues concern students enrolled in professional education programs. The first issue concerns the equitability of recruitment, selection, and retention procedures: Do the proportions of ethnic/racial minorities, women, and those from disadvantaged backgrounds who are in professional schools reflect their proportions within society as a whole? Does their representation in professional programs reflect their proportions among students in higher education? Smith (1974) has reported that the situation for black students in medical schools improved between 1963 and 1972, with black student enrollment doubling in that period. He noted, however, that "we are far from the projected goal of 12 percent minority representation in medical schools...and just as far from the goal of changing the present ratio of one minority physician for every 3,600 minority people" (p. 1).

The second issue concerns the relationship between characteristics of student populations and needs of the society they will one day serve as professionals: Are students with particular characteristics (e.g., students from rural areas and urban core areas) more likely to serve adequately the needs of particular populations requiring professional services (e.g., rural and urban core populations)? Recent discussions of the inadequacy of professional services for particular populations have focused on both the insufficiency in numbers of professionals and the inappropriateness of the services that are offered. Mayhew and Ford (1974) observed that sufficiency of size of the applicant pool, student body, graduating class, and licensed or certified practitioner group are basic to the quality of professional practice, as are achievement levels of these groups in knowledge and skills needed for professional practice. Long (1975) discussed the factors that relate to physician location decisions, including those that have implications for selection and training decisions (e.g., applicant's community of origin).

Heist (1962) reviewed research on students in various professions and compared the student populations on several variables, including fathers' occupations, academic ability, interests and values, and other personality characteristics. Differences in student characteristics among professions, and also between students in professional schools and students in other higher education programs, have implications for decisions concerning admissions policies and curricular content. For example, Heist noted that one study of the values of professional students showed that, on the average, entering medical students ranked social values lowest in importance among six value categories (aesthetic, economic, political, religious, social, and theoretical). Because of the implications of this finding for the delivery of health care services, professional education institutions might choose to include more emphasis on the social aspects of medical practice within their curricula. Heist also suggested that "the diversity of [students]...in any profession suggests that greater attention might be given to the approaches and procedures in classroom and laboratory...with some concern for the great variety of motivation

and attitudes" (p. 234). This suggests that another type of decision that professional institutions might make based on the characteristics of their students relates to changes in their educational delivery systems. Finally, Heist pointed out that students seek to enter different professions because of differing images they hold of themselves and of the profession. This relationship has implications for the types of career information that are disseminated to high school and college students. More detailed and realistic information on professional and nonprofessional careers would likely influence many students' career plans.

Factors that affect the types of students who enroll in professional schools include information available to potential enrollees in the institution; recruitment and selection policies of the institution; the rate of retention of enrolled students; students' family backgrounds and communities of origin; availability of financial aid; undergraduate colleges attended; and type and location of professional schools. The characteristics needed in future professionals may also affect student characteristics, now or in the future, by means of the institution's recruitment and selection policies. Figure 1 shows a conceptual framework of the ways in which these factors interact. Changes in policies affecting any of these factors may bring about changes in the characteristics of students enrolled in a particular professional program.

There are several decision points in the career of the student who seeks to enter a particular profession (Millerson, 1973). These decision points are (1) applying to a professional school, (2) enrolling in a professional school, (3) graduating from a professional school, (4) obtaining licensure or certification, and (5) entering practice. At each decision point, a profile of those students who continue their education and those who do not or cannot, plus an analysis of the reasons students terminate their training, would provide significant policy-related information. For example, if fewer women than men apply to professional schools or to schools in a particular profession, increased recruitment efforts may be needed; if fewer women who have enrolled in professional schools graduate, a different set of intervention

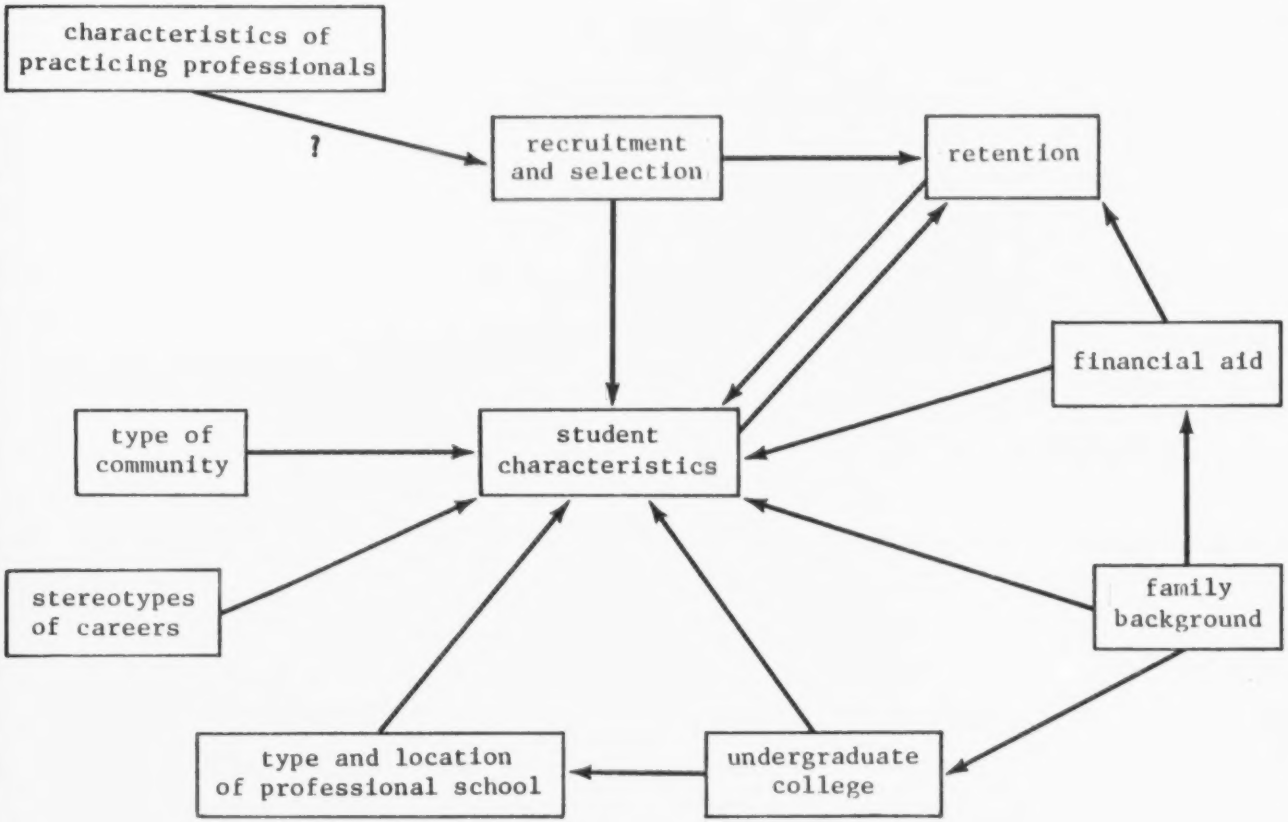

Figure 1. Major influences on the characteristics of students in professional schools. Note that student characteristics include race, sex, academic ability, interests, values, and career plans.

strategies may be called for, tailored to their reasons for dropping out.

A social indicator report on the characteristics of students in professional education programs should (1) present profiles of students who continue or terminate at each of these decision points, (2) discuss the implications of student characteristics for the quality of later professional service for various groups in the population, and (3) suggest changes in policy that might ameliorate existing or potential problems.

Characteristics of Professional Curricula

The content of curricula used in professional schools constitutes the area of widest debate among professional educators (Mayhew & Ford, 1974; Boley, 1977). The most controversial issues have been related to (1) the curricular balance between professional or technical education and general or liberal education (e.g., business courses versus philosophy courses) and (2) the curricular balance between theoretical and clinical or practical studies within the professional program (e.g., lectures versus labs or internships).

The first of these issues has its roots in the centuries-old debate concerning the value of liberal education for producing a broadly educated, critically thinking citizen, as opposed to a highly but narrowly trained specialist. Derrick (1978), discussing the debate in terms of social work education, defended the value of a liberal education, although he also asserted that those liberal arts included in a social work curriculum must be relevant to social work theory and practice. Corcoran (1977), in reviewing the 1968 "Goals of Engineering Education Report," observed that a way should be found to make these nontechnical subjects (i.e., liberal or general education courses) a more substantial and meaningful part of the curriculum. Mayhew and Ford (1974) suggested that a strong liberal arts and humanities component is desirable in the fields of medicine, engineering, and business. Data they collected on the preferences of professional school faculty regarding liberal arts subjects in professional curricula reveal that English composition is strongly supported. The results of their research are shown in Table 1.

Table 1

Percentages of Professional Faculties Favoring Certain Policies toward Liberal Arts Subjects

Subject	Required of All	Optional But Encouraged	Optional	Discouraged or Prohibited
English Composition	96	2	1	0
Mathematics	64	18	16	1
History	56	30	12	1
Chemistry	52	19	25	4
Speech	51	28	18	2
Physics	48	24	25	2
Economics	45	29	23	2
Literature	44	33	21	1
Psychology	42	31	24	2
Biology	42	23	29	5
Sociology	32	32	31	4
Foreign Language	30	35	31	3
Philosophy	27	41	29	2
Physiology	27	19	45	8
Political Science	27	36	32	4
Music	13	19	58	8
Art	12	25	55	7
Religion	8	21	62	9

Source: Mayhew and Ford (1974).

Note: Rows may not add to 100% because of rounding.

This issue of the balance between professional and general courses is important for professional education at both the undergraduate and graduate levels. Because of fundamental differences between graduate and undergraduate professional curricula, data should be presented separately for each level in a social indicator report. For instance, training for professions in which the bachelor's degree is frequently the first professional degree (e.g., nursing and engineering) normally includes liberal arts courses within the institutional general education requirements. At the graduate level, such institutional requirements are not usually imposed; therefore, required work in courses outside the professional school is an indication of the school's philosophy of education. A social indicator report should present data on professional school course requirements. Since the crux of the issue for many authors (e.g., Derrick, 1978) is the liberalization of the professional curriculum itself, a social indicator report should focus only on the types of courses required during the period of professional education, whether undergraduate or graduate. For those professional programs described in the report, data on the number of units, hours, or credits required in different subject areas should be presented. Such subject areas should be described for both professional and nonprofessional components of the curriculum.

The second issue, the balance between theoretical and clinical training within the professional curriculum, is also an issue of long standing. Since the Flexner Report on medical education in 1910, the overall trend in most professions has been toward increased theoretical training. However, Mayhew and Ford (1974) observed that, while a theoretical basis is essential, stress on theory to the point of neglect of practice tends to focus students' attention only on the problem, instead of on the person who has the problem. This orientation often leads to the professional's being unresponsive to the person's concerns and uncommunicative regarding the person's problem. Mayhew and Ford further state:

> The question as to which of these two aspects of professional concern should be emphasized has had an almost pendulum-like quality. Currently there is evidence that a number of professional schools have moved too far in the direction

> of overemphasis on practice, resulting in a "how-to-do-it" procedure that limits members in adapting to changed conditions. [p. 5]

Information on the number of units, hours, or credits in theoretical versus practical coursework for each profession should be included in a social indicator report on professional education. These data would provide policymakers, particularly at the state and school or departmental levels, with a basis for policy decisions concerning changes in the types of curricula that should be presented to students.

A conceptual framework describing the factors affecting curricular characteristics and the interrelationships of these factors is presented in Figure 2. These factors include societal needs, technological and social changes, changes in the size of the body of professional knowledge, the amount of specialization within a profession, available occupations within the profession, the practical experience of faculty members, and the characteristics of the student body.

Factors Influencing Policies and Practices of Professional Education Institutions

Wallis (1977) identified the three primary influences on professional education institutions as governmental bodies (e.g., state school-approving agencies), organized professional associations (e.g., the American Medical Association), and professional accrediting bodies (e.g., the Liaison Committee on Medical Education). Mayhew and Ford (1974) suggested that a fourth important influence on professional schools within university settings, which constitute a great majority of the schools in every profession, are the universities themselves.

Both state and federal governments regulate professional education institutions. The states exert control through their power to regulate the operation, and in some cases the curricula, of institutions within their borders and also through their power to set standards for the licensing of practicing professionals. Federal influence consists primarily of authority to recognize institutions as eligible for federal financial assistance programs and to establish national policies that influence professional practice. For instance, tax exemptions for solar energy systems increase the demand for engineers with training

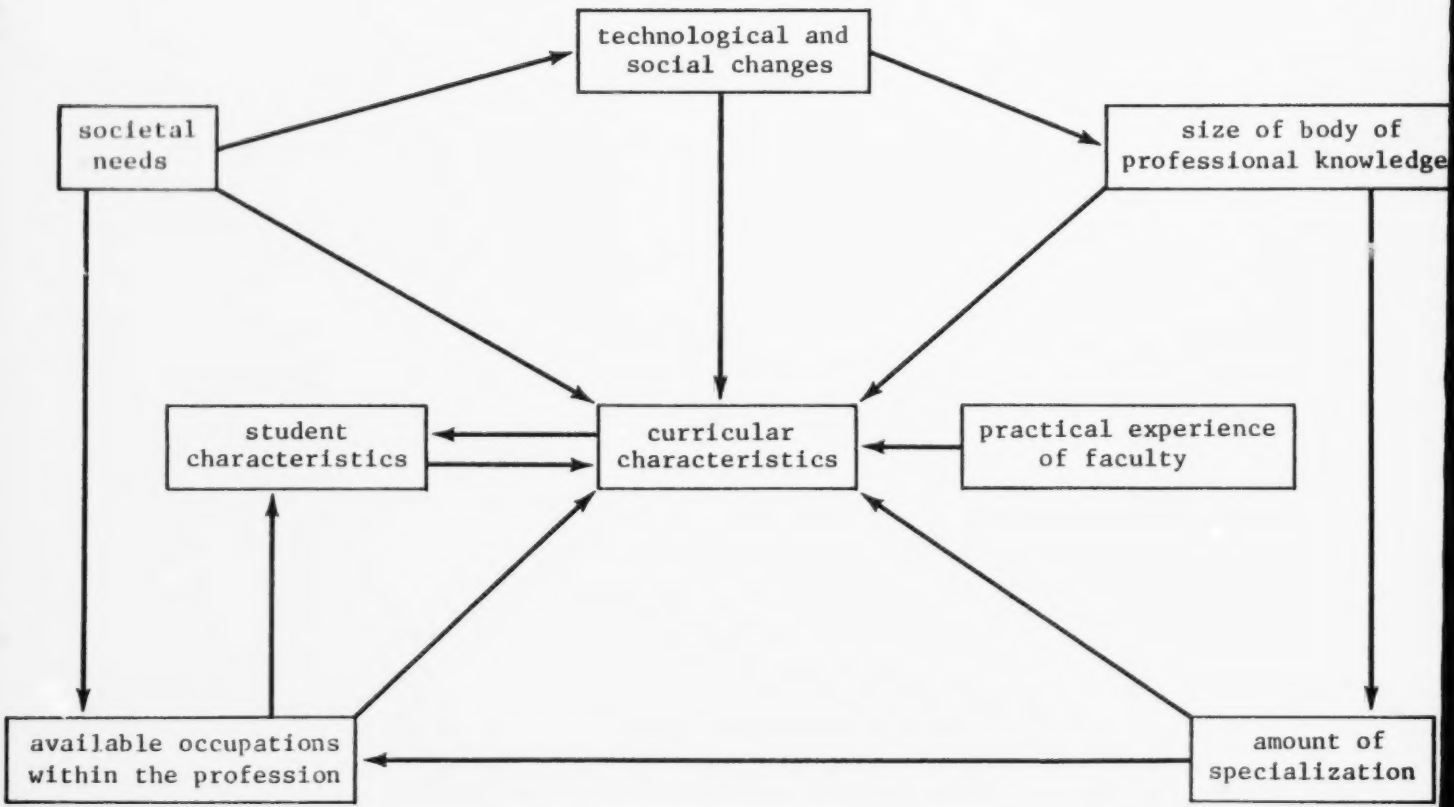

Figure 2. Major influences on curricular characteristics.

in this field, and hence influence the engineering curricula. Both state and federal governments have powers to disburse funds for a variety of purposes, ranging from research grants to student support. The large amounts of funds these agencies can make available to institutions makes them powerful influences on professional school policies and practices. Wallis (1977) has even asserted that governmental influence has overstepped appropriate bounds, attempting to influence the goals of professional education and lowering the quality of professional curricula. While a social indicator report could not prove or disprove this assertion, it could provide evidence of the types and extent of state and federal influence. Sources, levels, and purposes of financial support to professional schools and to students should be presented for each profession. State support should be described on a state-by-state basis, as should degrees of state control over curricula. Because national policies indirectly influence professional education in so many ways, a social indicator report will have to be limited to covering selected topics of particular interest (e.g., changes in enrollment in courses on energy-conserving technologies).

Professional organizations have the greatest influence in setting standards for professional practice. Professional certifying examinations are based on these standards, and state licensing requirements frequently are based on certifying examinations. Additionally, standards of professional practice form the basis for program accreditation standards. Since accreditation of the institution is often a prerequisite for its students to apply for licensing or certification, as well as for institutional participation in federal financial assistance programs, accreditation agencies and standards exert a powerful influence on professional programs (Wallis, 1977). Professional practice standards can also influence professional education programs indirectly, since faculties consist largely of persons who have met, and presumably to some degree adhere to, such standards.

Gross (1978) pointed out that, while high standards of professional practice are commendable, they can be overly restrictive, unrealistic, and motivated in part by a desire on the part of professionals to improve their own economic status. If professionals alone control the

setting of standards and their implementation through certifying, licensing, and accrediting procedures, then there is little counterbalancing pressure for the protection of other interests. Because of this situation, pressure for public participation in these procedures has been growing. For example, public participation on the boards of nationally recognized accrediting bodies is now required by law (Selden, 1976). A social indicator report should review the types of professional standards, the requirements for certification, and the requirements for program accreditation of various professional fields. Such a report should also present information on the extent to which the public participates in the setting and implementation of such standards.

The influence of a university on its affiliated professional schools relates less to professional standards than to overall academic standards.

> The definition of a profession as a self-determining collectivity requires considerable autonomy for the professional school. Yet the university has a stake in such things as standards of admissions, qualifications of faculty, and characteristics and expense of the curriculum. [Mayhew & Ford, 1974, p. 6]

The social indicator report should identify the proportion of institutions in each profession that operate in university settings, the areas in which the universities exercise control, and the extent of such control. For example, some institutions control all departmental expenditures except operating supplies, while others allow departments themselves to assign their total budgets among line items. Information of this type could be used to compare the autonomy of schools in various professional areas.

Figure 3 presents a conceptual framework showing the relationships among the factors affecting professional school policies and practices. Information on these factors for each profession would offer a basis for various policy decisions. For example, federal agencies might decide that research and development funds are too influential a factor on the practices of departments of engineering, creating undesirable uniformity; or accrediting bodies might decide that additional standards for a profession are needed.

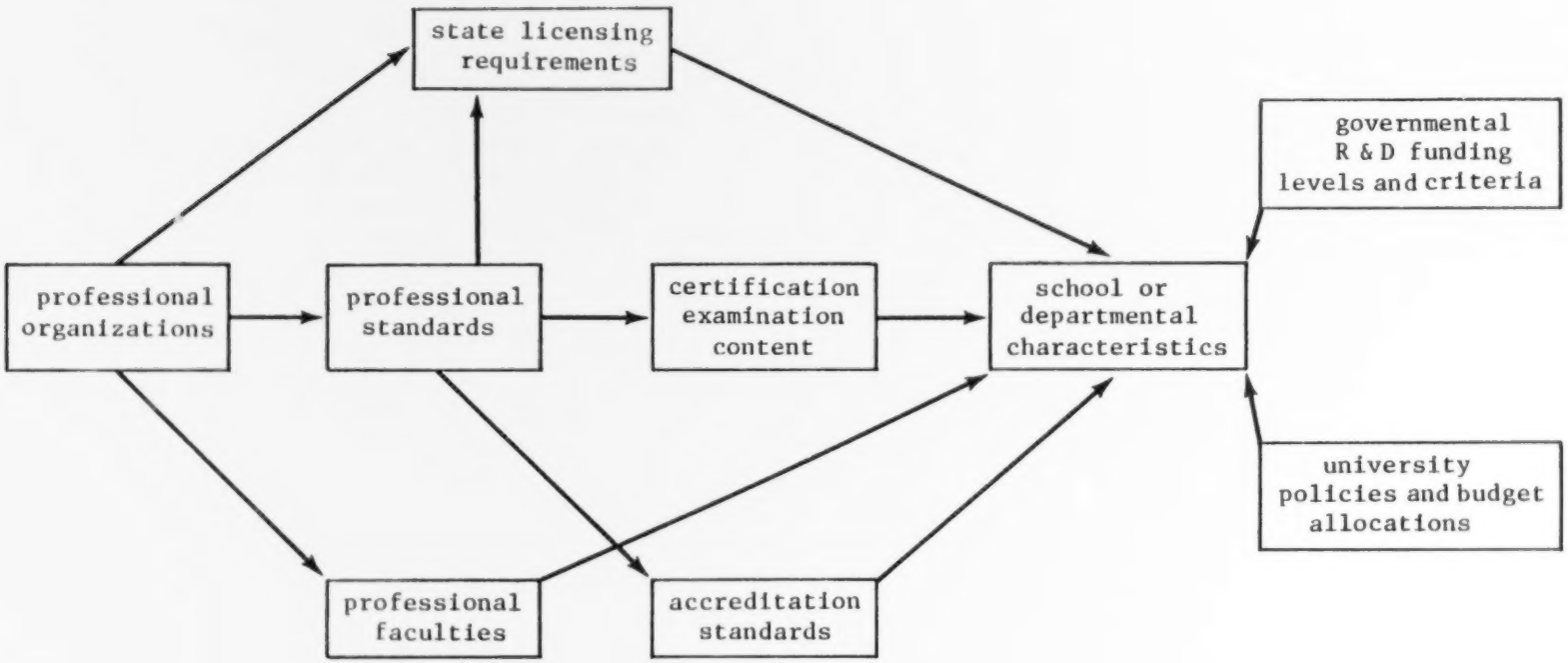

Figure 3. Major influences on the characteristics of professional schools and departments.

Availability of Financial Aid

Cuca, Sakakeeny, and Johnson (1976) discussed the direct relationship between family income and enrollment in a professional school. They cited a 1965 study by Rosinski that reported that 34% of medical students in the United States come from the upper social classes--classes that constituted only 3% of the population. They also noted that of the four schools in the study, the one with the lowest tuition had the highest percentage of students from lower social classes. Clearly, attendance at a professional school requires either a substantial family income or adequate financial aid.

The issues concerned with student financial aid involve (1) availability and (2) distribution. Financial aid that is adequate in dollar amount but that is not suited to a student's needs (e.g., work/study aid available to a student who wishes to attend school part-time) is not useful for that student. Similarly, financial aid that goes primarily to students of higher socioeconomic levels, because of their greater familiarity with aid availability, will not reach those students who need it most. Major influences on the amount and distribution of financial aid are shown in Figure 4.

A social indicator report should include information on financial aid available to students in each profession, including the level, source, and type of aid available and the types of recipients. This information would be of considerable value to policymakers interested in improving the accessibility of professional education to all qualified students. It could suggest, for example, a need for redistribution of funds among different types of student assistance programs or the need for better dissemination of information on financial aid to lower income students.

The Role of Continuing Professional Education

Continuing professional education refers to the training received by practicing professionals in order to maintain or update their skills. The development of new techniques that has occurred through improved technology and the demands these techniques have made upon the skill levels of practicing professionals have been discussed by

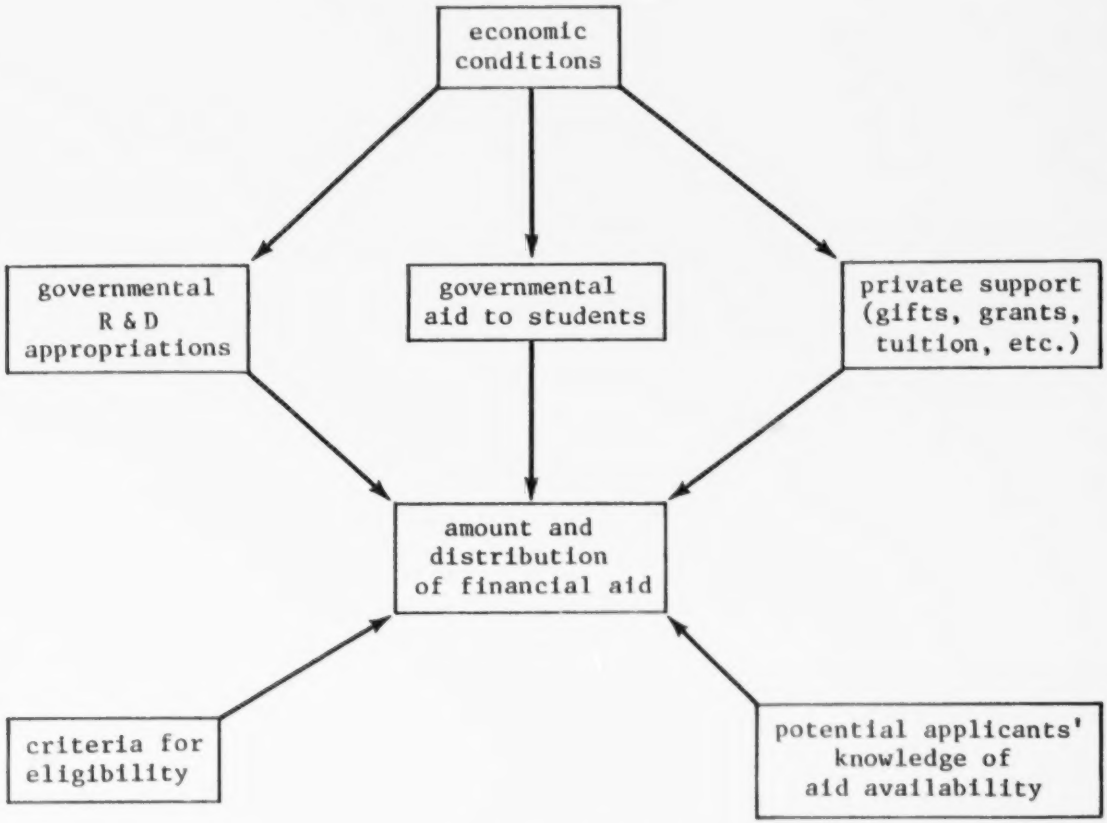
economic conditions
governmental R & D appropriations
governmental aid to students
private support (gifts, grants, tuition, etc.)
amount and distribution of financial aid
criteria for eligibility
potential applicants' knowledge of aid availability

Figure 4. Major influences on the amount and distribution of financial aid.

several authors (Mayhew & Ford, 1974; Boley, 1977; Gross, 1978). Recertification or relicensing of some types of professionals is required in many states (Turner & Rushton, 1976). These requirements often include enrollment in continuing professional education courses. Groteleuschen and Caulley (1977) stated that nearly 50% of all professionals participate in one or more continuing education activities every year.

The purpose of including information on continuing professional education in a social indicator report is to serve decisionmakers concerned with maintaining and improving the quality of professional practice. The report should therefore include information on the types of continuing education activities in each profession, on state and organizational requirements for continuing professional education, and on the proportions of professionals in each field who engage in continuing education activities.

A conceptual framework that describes the factors influencing continuing education activities in various professions is shown in Figure 5. Changes in the status of any of these influencing factors (e.g., state licensing requirements) would directly affect the status of continuing professional education.

Summary

This paper has reviewed recent literature and summarized issues pertinent to professional education. Five issue areas have been identified: (1) characteristics of students in professional schools, (2) characteristics of professional curricula, (3) factors influencing professional education institutions, (4) availability of student financial aid, and (5) continuing professional education. Specific issues and conceptual frameworks of relevant variables have been presented in each area. A social indicator report presenting time-series data on these topics would permit answers to the following research questions: (1) What is the status of various professions with respect to each issue? (2) Has the status of professions changed in recent years?

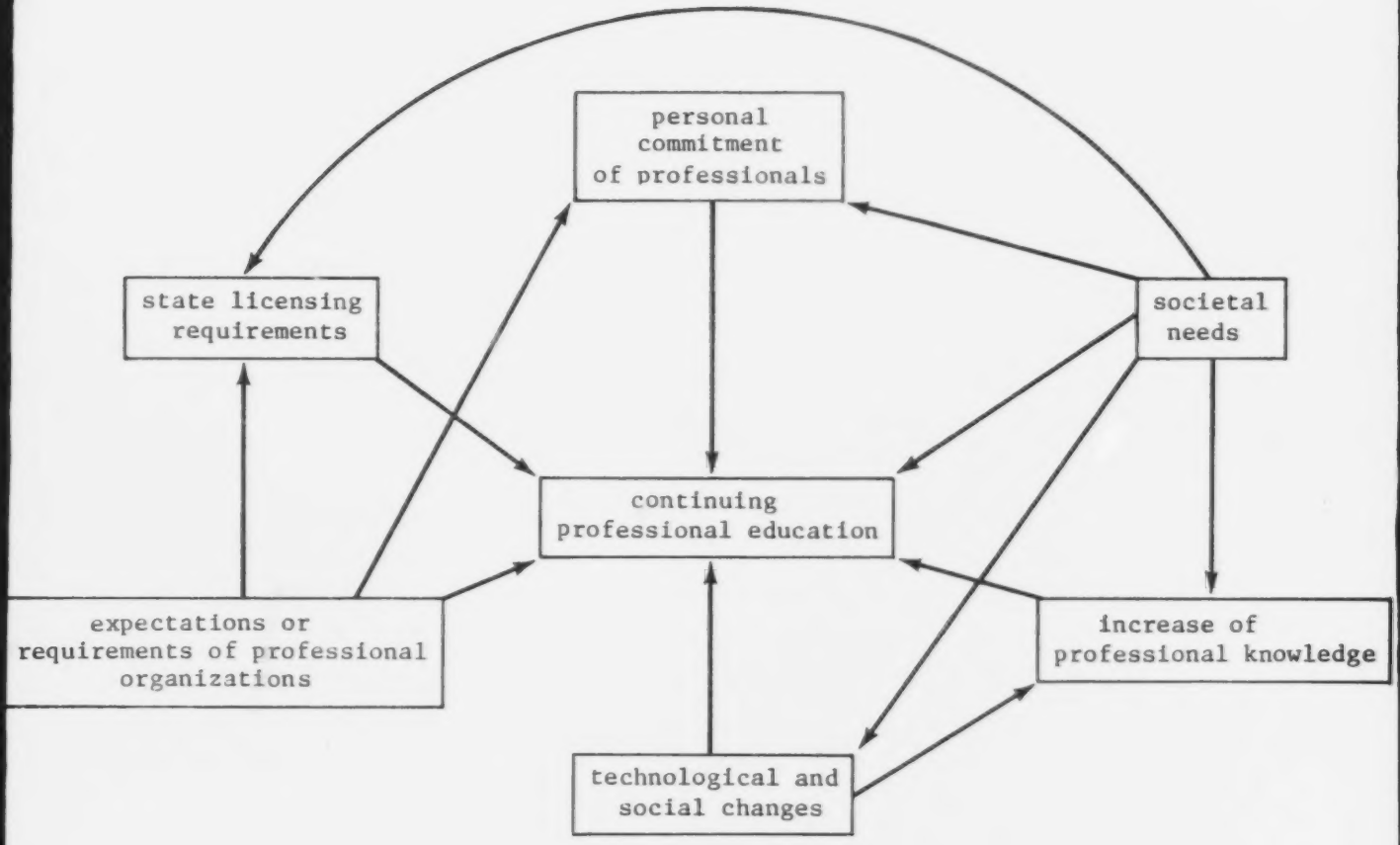

Figure 5. Major influences on continuing professional education.

(3) What future trends are likely? (4) What are the implications of these trends for educational policies? (5) What, if any, are the implications for educational policies of differences among the professions?

REFERENCES

Anderson, G. L. Trends in education for the professions (ERIC/Higher Education Report No. 7). Washington, D.C.: American Association for Higher Education, 1974.

Problems and progress in professional education, including curriculum, control, and the supply of human resources for professional services, are discussed. Data are presented on the growth in professional employment and in the number of first professional degrees earned over the past two decades.

Becker, H. S. The nature of a profession. In N. B. Henry (Ed.), Education for the professions. The Sixty-First Yearbook of the National Society for the Study of Education, Part II. Chicago: NSSE, 1962.

The term "professional" is examined, and efforts since 1900 to define the term are discussed. The author concludes that no one definition and no one set of occupations can be acceptable to all.

Boley, B. A. (Ed.). Crossfire in professional education: Students, the professions and society. Proceedings of a conference sponsored by Northwestern University Schools of Dentistry, Education, Engineering, Journalism, Law, Management, and Medicine, Evanston, Illinois, 1975. New York: Pergamon Press, 1977.

This volume contains five papers prepared by notable educators in various professions, plus a transcript of a roundtable discussion held at the conference. The issues discussed range from philosophical questions concerning education in humanistic values for professionals to practical questions of the validity of competency examinations and the need for recertification. The papers and discussion touch on issues of the greatest importance to professional education.

Corcoran, W. H., Drake, R. M., Jr., Fadum, R. E., Kimball, W. P., Kirkpatrick, C. V., & Ungrodt, R. J. Engineering and engineering technology education: A reassessment. Engineering Education, 1977, 67(5), 765-776.

The 1968 report on the goals of engineering education, which covered program content and structure, accreditation, nontechnical program content, the engineer and technologist in society, and faculty develop-

ment, is considered. An evaluation of the accomplishments toward each goal is also presented. The goals report suggests that desirable future directions for engineering education are (1) increased emphasis on technical and related courses in the curriculum and (2) encouragement of study beyond the bachelor's degree.

Cuca, J. M., Sakakeeny, L. A., & Johnson, D. G. The medical school admissions process: A review of the literature, 1955-76. Washington, D.C.: Association of American Medical Colleges, 1976. (NTIS No. PB-263 962)

The authors attempt to provide a comprehensive review of the literature on admissions to U.S. medical schools, including descriptions of the relationships between the admissions process and the meeting of national and institutional goals. Student selection factors and their predictive validity are analyzed. Changes in the characteristics of accepted and rejected applicants, including intellectual characteristics and background, personality factors, and demographic characteristics, are described.

Derrick, P. Liberal education and social work education. Journal of Education for Social Work, 1978, 14(1), 31-38.

This article briefly traces the history of liberal education and presents four twentieth century concepts of liberal education. The author compares these concepts to present social work accreditation standards and suggests that the standards reflect a middle-ground, pragmatic position on the value of liberal arts for social workers. He offers suggestions for increasing the interface between liberal and professional goals in undergraduate social work education.

Graham, R. The problem: Determining the distribution of graduate medical education positions. In Policy analysis for physician manpower planning. Symposium held in conjunction with the Joint National Meeting of the Institute of Management Science and the Operations Research Society of America, San Francisco, 1977. Washington, D.C.: U.S. Government Printing Office, 1977.

An overview of the history and structure of the graduate medical education process is presented. The author describes major issues of current interest, including the rush to specialization in medical practice since 1940.

Gross, S. J. The myth of professional licensing. American Psychologist, 1978, 33, 1009-1016.

Historical, economic, and sociological research indicate little correlation between licensing and the competence of practitioners. The author asserts that licensing is primarily a mystifying arrangement that promises to protect the public but actually is preventing the public from directly holding professionals accountable. He states that acknowledging the failure of licensing is a necessary step in considering how to truly protect the public.

Groteleuschen, A. D., & Caulley, D. N. A model for studying determinants of intention to participate in continuing professional education. Adult Education, 1977, 28, 22-37.

A theoretical model for a program of research into the determinants of a professional's intention to participate in continuing education is presented. The model has three components: attitudes concerning the consequences of such participation; perceptions of what significant others think about such participation; and personal beliefs and motivation to comply with such beliefs. Information is presented on types and levels of current participation.

Heist, P. The student. In N. B. Henry (Ed.), Education for the professional. The Sixty-First Yearbook of the National Society for the Study of Education, Part II. Chicago: NSSE, 1962.

Research on characteristics of students entering four professions (medicine, engineering, dentistry, and law) is reviewed, and implications of the differences in student populations are discussed. The role of students' self-concepts and images of professions in their enrollment decisions is examined. The author concludes that student heterogeneity on most variables is high and that approaches to professional education should be flexible to accommodate student differences.

Hellman, L. K. Considering the future of legal education: Law schools and social justice. Journal of Legal Education, 1978, 29(2), 170-193.

The place of ethics within the curriculum of law schools is discussed. The author believes that value neutrality, which is taught through the "justice as process" concept in legal education, is a useful perspective only in limited circumstances. He suggests that this approach should be balanced by direct consideration of the social values involved in cases discussed and by other approaches that make implicit values explicit.

Henry, N. B. (Ed.). Education for the professions. The Sixty-First Yearbook of the National Society for the Study of Education, Part II. Chicago: NSSE, 1962.

A comprehensive discussion of professional education issues is presented. The papers, all written by different authors, fall into four areas: (1) background and current studies, including the evolution of professional education and its continuing problems; (2) case studies in professional education, focusing on medicine, engineering, teaching, and business; (3) the influencing forces on professional education, including students, the affiliated universities, and extra-institutional factors; and (4) the ideal education for the professional.

Long, E. The geographic distribution of physicians in the United States: An evaluation of policy-related research. Minneapolis: Interstudy, 1975. (NTIS No. PB-246 217)

Literature on the geographic distribution of physicians in the United States is reviewed. The possible effectiveness of various policies designed to influence the redistribution of physicians is explored, and a detailed analysis of the effects of ten factors is presented.

Mayhew, L. B., & Ford, P. J. Reform in graduate and professional education. San Francisco: Jossey-Bass, 1974.

This volume discusses a comprehensive set of issues in professional education. Pressures for changes in professional education are identified: (1) the demands of minority and other student groups, (2) technological changes, and (3) social dissatisfaction with the types and costs of available professional services. Issues include the realtionships of professional schools to other groups (e.g., universities and professionals) and curriculum content. Several reforms are recommended for the curriculum, scheduling, reorganization of programs, teaching, professional ethics, and continuing professional education.

Miller, G. E. Medicine. In N. B. Henry (Ed.), Education for the professions. The Sixty-First Yearbook of the National Society for the Study of Education, Part II. Chicago: NSSE, 1962.

This chapter discusses the structure of American medical education, including educational patterns, control of medical education, and the study of medical education. The history of changes in these elements since the turn of the century is described. Changes are discussed for the content of the curriculum, admissions standards, and certification standards.

Millerson, G. Education in the professions. In T. G. Cook (Ed.), Education and the professions. London: Metheun, 1973.

Various definitions of the concept of a profession and the stages of professional training are presented. These stages are: (1) recruitment, (2) induction, (3) initiation (or certification and the beginning of profession practice), and (4) maintenance.

Schudson, M. The Flexner Report and the Reed Report: Notes on the history of professional education in the United States. Social Science Quarterly, 1974, 55(2), 347-361.

The author reviews the 1910 Flexner Report on the status of medical education in the United States and the 1921 Reed Report on the status of legal education noting the significance of both reports, the context in which each was developed, and the degree to which the recommendations of each have been implemented since their publication. The histories of medical and legal education in this century are discussed in terms of the criticisms and recommendations of each report.

Selden, W. K. Accreditation and the public interest. Washington, D.C.: The Council on Postsecondary Accreditation, 1976.

The purposes of accreditation in professional education are reviewed. The author asserts the desirability of encouraging public participation in the accreditation process. He believes that only in this way can the technical expertise of peer review be merged with the general welfare concerns of the public.

Smith, V. C. The study of recruitment and progess of minority group medical students. Student National Medical Association, 1974. (NTIS No. PB-237 710)

The results of research examining institutional and personal factors associated with minority students' acceptance and progress in medical schools are presented. Data for entering medical college classes in 1970 and 1971 are presented. Variables are identified that are important in determining how to improve efforts in recruiting and counseling minority students, in providing financial support, and in providing social-psychological reinforcement.

Turner, J. D., & Rushton, J. (Eds.). Education for the professions. Manchester, England: Manchester University Press, 1976.

This book presents a series of papers on the education of professionals in Great Britain. The professions discussed are the clergy, accounting, architecture, medicine, engineering, law, social work, and teaching. Issues and approaches to education in the various professions differ, but common threads are the proportions of theoretical and practical training, types and timing of professional certification, and the public view of the profession. Professional education issues in Britain are similar to those found in the United States.

Wallis, W. A. In B. A. Boley (Ed.), Crossfire in professional education: Students, the professions, and society. Proceedings of a conference sponsored by Northwestern University Schools of Dentistry, Education, Engineering, Journalism, Law, Management, and Medicine, Evanston, Illinois, 1975. New York: Pergamon Press, 1977.

Several purposes for graduate study and possible approaches to increasing the flexibility of structure of graduate programs are presented. Outside forces, such as professional societies, with which graduate education must deal are described.